Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
Petition for Waiver of Rules	)	GN Docket No. 15-178
Requiring Support of TTY	)	
Technology	)	

REPORT

Competitive Carriers Association ("CCA")[1] supports the Federal Communications Commission's ("FCC" or "Commission") efforts to facilitate the transition from text telephone technology ("TTY") to real-time text ("RTT"), or an alternative accessibility solution, through the *Report & Order and Further Notice of Proposed Rulemaking* ("*Report & Order*") adopted in December 2016.[2] Prior to the *Report & Order*, the Commission granted CCA's request for a waiver of applicable TTY-related requirements for its members' IP-enabled wireless services in the same manner and with the same conditions as waivers previously granted to AT&T, Cellular South, and Verizon ("CCA *Waiver Order*").[3] The *Report & Order* extended the waiver granted in the *CCA Waiver Order*, including the expectation that participating members submit progress reports detailing their progress toward meeting the FCC's new RTT requirements.[4] In

---

1 CCA is the nation's leading association for competitive wireless providers and stakeholders across the United States. CCA's membership includes nearly 100 competitive wireless providers ranging from small, rural carriers serving fewer than 5,000 customers to regional and national providers serving millions of customers. CCA also represents nearly 200 associate members consisting of small businesses, vendors, and suppliers that serve carriers of all sizes.

2 *Transition from TTY to Real-Time Text Technology; Petition for Rulemaking to Update the Commission's Rules for Access to Support the Transition from TTY to RealTime Text Technology, and Petition for Waiver of Rules Requiring Support of TTY Technology*, Report and Order and Further Notice of Proposed Rulemaking, 82 FCC Rcd 7699 (2017) ("*Report & Order*").

3 *Petition for Waiver of Rules Requiring Support of TTY Technology*, Order, DA 16-435 (Apr. 20, 2016) ("*CCA Waiver Order*").

satisfaction of this condition, CCA hereby submits its second Progress Report on behalf of its participating members, with corresponding carrier information attached as Exhibit A.[5]

I. CCA'S MEMBERS CONTINUOUSLY WORK TO ADVANCE INNOVATIVE TECHNOLOGIES THAT TRANSCEND ACCESSIBILITY BARRIERS.

CCA's members are committed to developing and implementing innovative technologies like RTT, and to working alongside policymakers and industry stakeholders to ensure devices are accessible to all consumers. CCA therefore applauds the FCC's efforts to facilitate the transition from TTY to RTT through its *Report & Order*. While implementing new technologies often is mirrored by challenges, CCA's members believe RTT technology will be beneficial, especially over new IP-based mediums,[6] and will enable more consumers to fully benefit from telecommunications and advanced communications services. CCA's participating members continue to strive to implement industry standard capabilities in their 4G LTE wireless networks to support interoperable RTT solutions, where applicable. Likewise, CCA's members are committed to undertake necessary steps to ensure that critical 911 and 711 services currently supported by TTY can be implemented in RTT. CCA's participating members are working to ensure a seamless transition that achieves interoperability and backwards compatibility between

---

4 The *CCA Waiver Order* required CCA to file, once every six months on behalf of its participating members, "reports detailing participating members' progress toward implementing RTT." CCA *Waiver Order* ¶ 18.

5 On April 20, 2016, CCA filed, on behalf of its participating members, its first Progress Report per the requirements imposed in CCA's *Waiver Order* and the FCC's *RTT Report & Order*. Additionally, on August 11, 2016, CCA also filed, on behalf of its participating members, a preliminary report with the Commission describing participating members' initial plans for meeting commitments to develop and deploy RTT or an alternative text-based solution that is accessible, interoperable with other solutions, and backward compatible with TTY technology. *See* Preliminary Report of Competitive Carriers Association, GN Docket No. 15-178 (filed Aug. 11, 2016) ("CCA Preliminary Report").

6 *See* Comments of Competitive Carriers Association, CG Docket No. 16-145, GN Docket No. 15-178 (filed July 11, 2016) ("CCA RTT NPRM Comments"); *and* Reply Comments of Competitive Carriers Association, CG Docket No. 16-145, GN Docket No. 15-178 (filed July 25, 2016) ("CCA RTT NPRM Reply Comments"). *See also* Comments of Competitive Carriers Association, CG Docket No. 10-213 (filed Sept. 7, 2016).

legacy networks and alternative solutions to TTY.

II. CCA'S MEMBERS CONTINUE TO WORK WITH INDUSTRY TO OVERCOME OBSTACLES TO RTT DEPLOYMENT.

While CCA supports the Commission's RTT proceeding, CCA's participating members have encountered some challenges, especially as more users migrate to IP-based services.[7] However, as noted in CCA's previous reports,[8] CCA members' ability to seamlessly and efficiently achieve RTT deployment and additional requirements set forth in the *Report & Order* is largely dependent on other participants in the wireless ecosystem, including but not limited to Original Equipment Manufacturers ("OEMs").

First, it is imperative that ATIS complete and publish its RTT specifications, and ensure any final specifications are widely available to all providers, particularly those that are unable to participate in the standards-setting forum.[9] As AT&T notes in its most recent Status Report, "target dates [for RTT deployment] are dependent on pending industry standards setting by ATIS and mobile device manufacturer development cycles."[10] What's more, Tier II and Tier III carriers have little, if any, ability to influence the technical ecosystem in which RTT will operate. Because of their size and dominance of the technical ecosystem, the two largest wireless providers will drive the development of a fully interoperable and backwards-compatible solution, as well as the landscape of the equipment ecosystem for RTT functionality. As a result, competitive carriers have few opportunities to participate in the initial RTT standards-setting process.

---

7 RTT NPRM ¶ 11.

8 *See* Report of Competitive Carriers Association, GN Docket No. 15-178 (filed Apr. 20, 2016) ("CCA First Progress Report").

9 *See Report & Order* ¶ 37, fn. 150.

10 *See* AT&T, *IP-Voice Accessibility Status Report of AT&T*, GN Docket No. 15-178 at 1 (filed Apr. 6, 2017) ("AT&T Progress Report").

Likewise, devices that integrate ATIS's specification must be available to all carriers. Since CCA's last Progress Report, submitted October 20, 2016, participating members continue to work with policymakers and vendors to ascertain RTT development timeframes and vendor capabilities. Yet, the fact remains that competitive Tier II and Tier III carriers cannot make RTT-capable devices available before they deploy RTT in their networks. Moreover, smaller providers often are unable to obtain the newest handsets, an issue that continues to plague compliance with other regulatory obligations.[11] Indeed, Tier II and Tier III carriers' access to such devices will be subject to OEMs willingness to make them available. Thus, even if Tier II and Tier III carriers could make RTT-capable handsets available independently of deploying RTT capability in their networks, they are unlikely to obtain RTT-capable devices from manufacturers on the same timeframe as AT&T and Verizon.

Once the ATIS's RTT specifications are complete and easily accessible, and devices are available to all carriers, CCA's members look forward to launching IP-based wireless services, and will be prepared to deploy the infrastructure necessary to support an alternative accessibility solution. That said, progress toward implementing RTT remains contingent on a variety of factors outside of many CCA members' control, including resource constraints, standards setting cycles, manufacturer development, and third party capabilities.[12]

Despite these obstacles, CCA's members remain actively engaged in determining next steps necessary to ensure interoperability with alternative solutions and legacy networks, within the most expeditious timeframe.

---

[11] *See Ex Parte* Letter from Christopher Nierman, Director, Federal Regulatory Affairs, GCI, to Marlene H. Dortch, Secretary, FCC, PS Docket No. 07-114 at 2-3 (filed July 28, 2010).

[12] *See* CCA RTT NPRM Comments at 4-6; CCA RTT NPRM Reply Comments at 3. *See also* AT&T Progress Report at 3.

III. CONCLUSION.

CCA's members remain committed to deploying alternatives to TTY, including through the development of RTT. The remainder of CCA's second Progress Report, including carrier specific information filed on behalf of its members, is attached below as Exhibit A.

Respectfully submitted,

/s/ Rebecca Murphy Thompson
Steven K. Berry
Rebecca Murphy Thompson
Courtney Neville
COMPETITIVE CARRIERS ASSOCIATION
805 15th Street NW, Suite 401
Washington, DC 20005
(202) 449-9866

April 20, 2017

Attachments: Exhibit A - Participating CCA Member Progress Reports

EXHIBIT A

TABLE OF CONTENTS

CCA Carrier Members Not *Yet* Deploying an Alternative Accessibility Solution; Timing Undetermined

The majority of CCA's participating members are committed to continued exploration of an alternative accessibility solution but have not yet made plans to deploy IP-based wireless services in the initial relevant timeframe by June 30, 2020. Each CCA carrier member listed below will update the Commission on progress as necessary. As noted in the attached Report, many of CCA's participating members are rural and regional carriers unable to influence standards setting and the equipment marketplace and, therefore, are not currently involved in deploying RTT. CCA's carrier members also are dependent on availability of affordable equipment, manufacturer cycles, and vendor capabilities. CCA and its members look forward to continued collaboration with industry stakeholders to meet the FCC's accessibility goals.

Consistent with obligations defined in the FCC's *RTT Report & Order* and the *CCA Waiver Order*, CCA's participating carrier members commit to implementing industry standard capabilities in the network to support interoperable solutions when they begin to deploy an alternative accessibility solution. Likewise, when CCA's participating carrier members begin to offer IP-based wireless services, they commit to implementing industry standard capabilities in their networks to support interoperable RTT solutions and backward capability with TTY. Carriers also will ensure that 911 calls are delivered in accordance with the applicable obligations to transmit 911 calls to appropriate PSAPs or emergency authorities. CCA's members remain actively engaged with CCA to stay informed of educational and industry efforts to implement RTT, and to ensure accessibility compliance. A list of participating CCA carrier members that have opted into CCA's TTY waiver and that seek to meet these commitments when they begin to deploy an alternative accessibility solution is below.

Agri-Valley Communications, Inc. d/b/a Agri-Valley Services

Americell PA-3, LP d/b/a Indigo Wireless

ATN International, Inc., and affiliates

Barnes City Telephone Cooperative

Carolina West Wireless, Inc.

Cellular Network Partnership d/b/a Pioneer Cellular

Central Louisiana Cellular, LLC d/b/a Cellular One

CML Telephone Cooperative Association

Cross Wireless, LLC and its affiliate Cross-Valliant Cellular Partnership, d/b/a Bravado Wireless

East Kentucky Network, LLC d/b/a Appalachian Wireless

FTC Communications, Inc.

GCI Communication Corp.

Inland Cellular, LLC

Iowa Wireless Services, LLC d/b/a iWireless

Kentucky RSA #3 Cellular General Partnership;
Kentucky RSA #4 Cellular General Partnership;
Cumberland Cellular Partnership, collectively Bluegrass Cellular

Missouri RSA 5 Partnership d/b/a Chariton Valley Wireless Services

NE Colorado Cellular, Inc. d/b/a Viaero Wireless

Nex-Tech Wireless, LLC

Northwest Missouri Cellular Limited Partnership d/b/a NorthwestCell

Nsighttel Wireless, LLC d/b/a Cellcom

Panhandle Telecommunication Systems, Inc. d/b/a PTCI

Pine Belt Cellular, Inc. d/b/a Pine Belt Wireless

Pinpoint Wireless Inc. d/b/a BLAZE Wireless

Premier Wireless, Inc.

RSA 1 Limited Partnership;
Iowa RSA 2 Limited Partnership, collectively Chat Mobility

Rural Independent Network Alliance LLC

Shenandoah Telecommunications Company, Inc. d/b/a Shentel

South Slope Cooperative Telephone Company d/b/a South Slope Wireless

Southern Communications Services, Inc. d/b/a Southern Linc

Texas 10, LLC d/b/a Cellular One

Thumb Cellular, LLC

Triangle Communication System, Inc.

Uintah Basin Electronic Telecommunications, LLC d/b/a STRATA Networks

United Wireless Communications, Inc.

Upper Midwest Wireless, LLC, and its affiliates

The remainder of CCA's participating carrier members that opted-in to CCA's waiver are listed below. Pursuant to the *CCA Waiver Order,* each carrier provides an update on its progress and status to developing and deploying its selected accessibility solution(s) including information on interoperability with the technologies deployed or to be deployed by other service providers, backward compatibility with TTYs, and efforts to ensure delivery of 911 calls to the appropriate PSAP or emergency authority. CCA and its members look forward to ongoing collaboration with the FCC and industry to promote accessibility for all consumers.

Sprint Corporation

Question	**Member Answer**
Please provide company identification information, including whether you operate under a d/b/a.	Sprint Corporation on behalf of its brands Sprint, Sprint Prepaid, Boost Mobile, Virgin Mobile USA and Assurance Wireless (hereinafter "Sprint")
Please provide specific evidence of your progress and status toward developing and deploying an alternative accessibility solution to TTY, if any, by December 2017.	Sprint has developed a cross-departmental team that meets regularly to discuss an accessible RTT solution. This project-focused team includes representatives from Sprint's Network, Product, Relay, Legal/Regulatory and Standards organizations. The team monitors closely the work within the industry standards bodies to ensure Sprint's ultimate solution will comport with these standards to ensure seamless interoperable communications as well as backwards compatibility.
Please provide *an estimated timetable* of your plans to develop and deploy an alternative accessibility solution to TTY, if applicable, by December 2017.	Sprint is planning to deploy RTT support for its IP-based wireless communications. Sprint's timeline to deploy an all IP network for voice communications (*e.g.,* VoLTE) is undetermined at this point. However, as Sprint deploys IMS as part of its VoLTE roll-out, Sprint will incorporate RTT support. In the interim, Sprint will continue to support TTY over its circuit-switched voice network.
Please provide information on interoperability with the technologies deployed or to be deployed by other service providers. Have you encountered obstacles to achieving interoperability? If so, please describe your efforts to overcome these barriers.	Sprint's concerns regarding interoperability center on IETF RFC 4103 and OEM adoption. While RFC 4103 interoperability has been defined by the FCC as minimum interoperability, there are other aspects for both device and network deployments not covered by RFC 4103 which are being developed in other standards bodies such as ATIS. These standards, which are not complete, affect OEMs ability to develop RTT (RFC 4103) compatible handsets.
Please describe your efforts to ensure backward compatibility with TTYs. Have you encountered	Sprint believes backwards compatibility solutions will be unique to each carrier and urges the FCC to provide regulatory flexibility, so that each carrier may

obstacles to achieving backward compatibility with TTY technology? If so, describe your efforts to overcome these barriers.	determine the best approach for its particular network/architecture as well as handsets.
To the extent a participating CCA member begins to make RTT available, it must ensure that all 911 calls using this technology are delivered in accordance with the obligation to transmit 911 calls to the appropriate PSAP or local emergency authority. Please describe your efforts to ensure delivery of 911 calls to the appropriate PSAP, if applicable.	Sprint endeavors to meet this goal guided by industry standards supporting 911 call compatibility. Testing will be of paramount importance; however, Sprint is not nearing this stage of deployment. Sprint looks forward to updating the Commission on this important aspect of RTT when it is closer to deploying a solution.
Please provide information related to "ongoing coordination with other carriers working to develop RTT, educational efforts regarding RTT, and implementation plans that will facilitate RTT."	Sprint participates in numerous industry standards bodies involved with RTT development, including notably, two ATIS committees: the Wireless Technology and Systems Committee (WTSC), and the Packet Technologies and Systems Committee (PTSC). Sprint also works individually with consumer interest groups and collectively with CCA and CTIA on a variety of outreach/educational activities. As the nation's leading provider of Relay Services, Sprint is proud of its service to deaf, hard of hearing, speech impaired and deaf-blind consumers and looks forward to ensuring RTT will be implemented in a way to further enrich the lives of people in these communities.

T-Mobile US, Inc.

Question	**Member Answer**
Please provide company identification information, including whether you operate under a d/b/a.	T-Mobile US, Inc.[13]
Please provide specific evidence of your progress and status toward developing and deploying an alternative accessibility solution to TTY, if any.	T-Mobile is implementing industry standards that will support interoperable RTT solutions for its 4G LTE network based on RFC 4103 as developed as a result of input from the Internet Engineering Task Force (IETF).
Please provide *an estimated timetable* of your plans to develop and deploy an alternative accessibility solution to TTY, if applicable.	T-Mobile is on track to timely deploy an accessibility solution in its network based on RFC 4103 by the year-end 2017 deadline. Company planning for testing aspects of its solution is underway. In addition, T-Mobile is working with manufacturers to secure an RTT-enabled handset to offer as part of its device portfolio by the required year-end 2017 deadline. It is important to recognize that RTT handset deployment is dependent upon what manufacturers can feasibly make available in consumer devices and the timing of such implementation.
Please provide information on interoperability with the technologies deployed or to be deployed by other service providers. Have you encountered obstacles to achieving interoperability? If so, please describe your efforts to overcome these barriers.	As part of its deployment, T-Mobile is exploring opportunities to test RTT interoperability with other service providers. As part of this process, the company is devising a comprehensive, multi-faceted testing plan to allow assessment of various use cases.
Please describe your efforts to ensure backward compatibility with TTYs. Have you encountered obstacles to achieving backward compatibility with TTY technology? If so, describe your efforts to overcome these barriers.	T-Mobile believes that RTT backward compatibility with TTY technology can be achieved by way of multiple approaches. The company has plans to test its chosen solution.
To the extent a participating CCA	T-Mobile is committed to accurately transmitting 911

[13] T-Mobile US, Inc., a publicly traded company, provides services through its subsidiaries and operates its flagship brands, T-Mobile and Metro PCS. This document addresses the network of T-Mobile US, Inc.

member begins to make RTT available, it must ensure that all 911 calls using this technology are delivered in accordance with the obligation to transmit 911 calls to the appropriate PSAP or local emergency authority. Please describe your efforts to ensure delivery of 911 calls to the appropriate PSAP, if applicable.	calls and is exploring opportunities to test its RTT solution to ensure 911 calls are transmitted as appropriate. As part of this process, the company is devising a comprehensive plan to assess use cases.
Please provide information related to "ongoing coordination with other carriers working to develop RTT, educational efforts regarding RTT, and implementation plans that will facilitate RTT."	T-Mobile is an active participant in the Alliance for Telecommunications Industry Solutions (ATIS) RTT standards development working groups. The company's cross-functional team, comprised of engineers and business managers, are collaborating on the deployment of its RTT solution, specifically focusing on the wireless network, wireless handsets, emergency calling capabilities and the accessibility experience. As mentioned above, T-Mobile is exploring opportunities to test its RTT solution. T-Mobile works with CCA and CTIA on outreach/educational opportunities regarding RTT in addition to taking steps to inform its customers about certain limitations of TTY operations over IP-technologies.

United States Cellular Corporation

Question	Member Answer
Please provide company identification information, including whether you operate under a d/b/a.	United States Cellular Corporation ("U.S. Cellular"), its Subsidiaries and Affiliates (collectively referred to as "USCC")
Please provide specific evidence of your progress and status toward developing and deploying an alternative accessibility solution to TTY, if any.	U.S. Cellular is aware of its obligations concerning the TTY to RTT transition pursuant to the FCC R&O released in December 2016. USCC is developing and engineering its IP-based calling networks in-line with the FCC's expectations that non-nationwide wireless providers have initial wireless service RTT support available by end of June 2020 and to have RTT end user device support available by end of June 2021.
Please provide *an estimated timetable* of your plans to develop and deploy an alternative accessibility solution to TTY, if applicable.	USCC continues to engineer its network in conjunction with the FCC's compliance dates as contemplated in the R&O and is monitoring related standards activity. Furthermore, USCC is monitoring other carriers' deployments in consideration of roaming implications concerning RTT technology and further network expansion.
Please provide information on interoperability with the technologies deployed or to be deployed by other service providers. Have you encountered obstacles to achieving interoperability? If so, please describe your efforts to overcome these barriers.	The IETF RFC 4103 is considered a critical component toward making interoperability functional across commercial platforms. USCC continues to evaluate the RFC 4103 transport protocol as a component of its RTT solution.
Please describe your efforts to ensure backward compatibility with TTYs. Have you encountered obstacles to achieving backward compatibility with TTY technology? If so, describe your efforts to overcome these barriers.	USCC continues to assess dedicated architecture and design that will support industry standards capabilities for TTY backwards compatibility, such as accessibility to 911 emergency services, TRS support, and peer-to-peer call sessions.
To the extent a participating CCA member begins to make RTT available, it must ensure that all 911 calls using this technology are delivered in accordance with the obligation to transmit 911 calls to the appropriate PSAP or local	USCC has not yet deployed RTT but intends to do so with a standards-based approach to comply with at least the minimum functional requirements for supporting 911 call compatibility to PSAP destinations.

emergency authority. Please describe your efforts to ensure delivery of 911 calls to the appropriate PSAP, if applicable.	
Please provide information related to "ongoing coordination with other carriers working to develop RTT, educational efforts regarding RTT, and implementation plans that will facilitate RTT."	USCC collaborated with the two leading wireless carrier industry associations to respond to the FCC's "Transition of TTY to RTT" NPRM and also actively monitors participating carriers' RTT progress reports for implementation plans. USCC anticipates that educational materials concerning RTT will be posted on its own customer facing website and further cross-referenced on industry association websites as applicable.